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Epidemiologic Notes and Reports

Nationwide Dissemination of Multiply Resistant *Shigella sonnei* Following a Common-Source Outbreak

In early July 1987, an outbreak of multiply resistant *Shigella sonnei* gastroenteritis occurred among persons who attended the annual Rainbow Family gathering in North Carolina (*1*). Since that time, four clusters of gastroenteritis due to multiply resistant *S. sonnei* have been reported among persons who had no apparent contact with gathering attendees.

Preliminary results from a survey of gathering attendees showed that 157 (58%) of the 270 respondents experienced acute diarrheal illness. This finding is consistent with previous estimates of a 50% or greater attack rate of acute gastroenteritis among the 12,000 attendees (*1*). Seventy-five attendees from 26 states* and 14 contacts of these persons who had not attended the gathering have had culture-confirmed infection. The *S. sonnei* isolates from these patients are resistant to ampicillin, tetracycline, and trimethoprim-sulfamethoxazole—the antibiotics usually used to treat shigellosis.

In July, August, and September, clusters of multiply resistant *S. sonnei* infection occurred in Missouri and Pennsylvania. Isolates from these cases showed an antimicrobial resistance pattern similar to that of the strain involved in the North Carolina outbreak. Two small clusters were reported from Missouri. A third cluster occurred among patrons and employees of a Pennsylvania restaurant. In a fourth cluster, which has been epidemiologically linked to the third, residents and staff of a nursing home in the same Pennsylvania town became ill.

Reported by: JN MacCormack, MD, MPH, State Epidemiologist, North Carolina Dept of Human Resources. RH Hutcheson, MD, State Epidemiologist, Tennessee Dept of Health and Environment. HD Donnell Jr, MD, MPH, State Epidemiologist, Missouri Dept of Health. C Diehl, M Hardin, R David, MD, Acting State Epidemiologist, Pennsylvania Dept of Health. Enteric Diseases Br, Div of Bacterial Diseases, Center for Infectious Diseases; Div of Field Svcs, Epidemiology Program Office, CDC.

Editorial Note: In a national survey of *Shigella* isolates conducted in 1985 and 1986, approximately 4% of isolates from *S. sonnei* infections acquired in the United States were resistant to trimethoprim-sulfamethoxazole. None had the same antimicrobial

*California, Colorado, Connecticut, Florida, Georgia, Illinois, Iowa, Maryland, Massachusetts, Michigan, Missouri, New Hampshire, New Jersey, New Mexico, New York, North Carolina, Ohio, Pennsylvania, Rhode Island, Tennessee, Texas, Utah, Vermont, Virginia, West Virginia, and Wisconsin.

Shigella sonnei – *Continued*

resistance pattern as the North Carolina outbreak strain. The occurrence of these four clusters of infection with multiply resistant *S. sonnei* underscores the need for sensitivity testing to guide in selecting appropriate antimicrobial therapy. Such testing also permits early identification and prompt reporting of multiply resistant strains to public health authorities so further transmission can be prevented.

Further spread of this resistant strain will likely limit the effectiveness of the usual antimicrobial agents for treating shigellosis. Infections that are caused by this multiply resistant *Shigella* and that require antimicrobial therapy can be treated with nalidixic acid or norfloxacin. Although studies in other countries suggest that both nalidixic acid and norfloxacin are effective for the treatment of shigellosis (*2,3*), it is important to note that neither nalidixic acid nor norfloxacin has been approved by the Food and Drug Administration (FDA) for the treatment of bacterial gastroenteritis. Both nalidixic acid and norfloxacin are quinolones, and care should be exercised in prescribing either one for children because of experimental evidence that quinolones can cause arthropathy in young animals (*4,5*). No such lesions have been reported to the FDA in association with nalidixic acid therapy in humans. Life-threatening infections are rare with *S. sonnei* but could be treated with gentamicin or chloramphenicol, to which the outbreak strain is sensitive.

Basic hygiene and sanitary precautions remain the cornerstones of control measures for shigellosis outbreaks, including those due to multiply resistant strains (*6*). Vigorous emphasis on handwashing with soap after defecation and before eating has been shown to reduce secondary transmission of shigellosis (*7*).

References

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Current Trends

Homicide Surveillance: High-Risk Racial and Ethnic Groups – Blacks and Hispanics, 1970 to 1983

The following summary is from the Homicide Surveillance Report, "High-Risk Racial and Ethnic Groups—Blacks and Hispanics, 1970 to 1983", issued by CDC in November 1986:*

Although great strides have been made in improving the health of the American people, a marked disparity remains in the burden of death and illness faced by blacks and other minorities relative to the white population. High rates of homicide mortality among blacks and other minorities account for much of this disparity (*1*).

*Copies of the full report may be obtained by writing Patrick O'Carroll, M.D., Koger Center, Mailstop F36, 1600 Clifton Road, Centers for Disease Control, Atlanta, Georgia 30333.

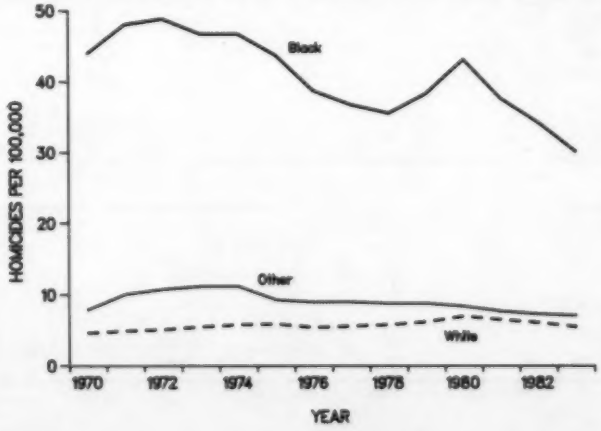
Homicide Surveillance — Continued

Homicide is the leading cause of death among blacks 15-34 years of age. Overall, homicide is the third leading cause of years of potential life lost (YPLL) for blacks. For whites and persons of other races, it is the sixth leading cause of YPLL. For the period 1970 to 1983, the crude homicide mortality rate for blacks was 37.4 per 100,000, 6.7 times the rate for whites (5.6) and 4.4 times the rate for persons of other races (8.5). Homicide rates for blacks decreased by 21.7% from 1970 to 1983, whereas homicide rates for whites increased by 30.2% (Figure 1). Despite these trends, homicide rates for blacks were still 5.3 times greater than rates for whites in 1983. Black males had the highest rates (approaching 100 per 100,000 for those 25-34 years of age) followed by black females, white males, males and females of other minority races, and white females. For each racial category, homicide rates were highest in the West. A slightly higher proportion of black than white victims were killed by persons known to them, by firearms, and under circumstances unrelated to another felony.

In the Southwest, Hispanics were at intermediate homicide risk, with lower rates than those of blacks but almost three times the rate of non-Hispanic whites in the region. Almost all the increased risk for Hispanics was among Hispanic males. In the Southwest, firearms and explosives were the weapons used in 70.3% of homicides among blacks, 65.1% of homicides among Hispanics, and 58.7% of homicides among non-Hispanic whites. Among Hispanic males, one-fourth of all homicides were committed with cutting and piercing instruments, compared with 18.1% and 18.5% among non-Hispanic white males and black males, respectively.

Certain patterns of homicide mortality in the United States were common to all racial and ethnic groups. Specifically, homicide rates were highest among males and young adults; at least half of all victims were killed with firearms, most of which were handguns. Most homicides occurred during the course of an argument or other nonfelony circumstance, and most victims knew their assailants. While identifying high-risk racial and ethnic groups helps to target resources and programs for homicide research and prevention, these common patterns suggest that preventive interventions may be applicable to the entire population.

FIGURE 1. Age-adjusted homicide rates, by race — United States, 1970-1983



Homicide Surveillance — Continued

Reported by: Div of Injury Epidemiology and Control, Center for Environmental Health and Injury Control, CDC.

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1. US Department of Health and Human Services. Report of the Secretary's Task Force on Black and Minority Health. Washington, DC: US Department of Health and Human Services, Public Health Service, 1985.

Occupant Restraint Usage in Fatal Crashes — Fatal Accident Reporting System, 1975-1986

Motor vehicle crashes account for almost one-third of the deaths due to injuries and half of the deaths due to unintentional injuries in the United States (*1*). The economic cost of motor vehicle crashes is conservatively estimated at $57 billion per year (*2*).

(Continued on page 641)

TABLE I. Summary — cases specified notifiable diseases, United States

Disease	38th Week Ending			Cumulative, 38th Week Ending		
	Sept. 26, 1987	Sept. 20, 1986	Median 1982-1986	Sept. 26, 1987	Sept. 20, 1986	Median 1982-1986
Acquired Immunodeficiency Syndrome (AIDS)	161	646	N	13,287	9,431	N
Aseptic meningitis	366	401	401	8,086	7,019	6,504
Encephalitis: Primary (arthropod-borne & unspec)	34	51	51	917	818	860
Post-infectious	-	3	2	82	86	86
Gonorrhea: Civilian	13,517	20,346	20,979	564,544	638,318	643,453
Military	225	306	510	12,042	12,010	15,754
Hepatitis: Type A	432	569	483	17,777	16,144	15,959
Type B	466	524	524	18,655	18,843	18,517
Non A, Non B	38	67	N	2,193	2,620	N
Unspecified	49	67	123	2,305	3,262	4,127
Legionellosis	16	16	N	629	528	N
Leprosy	1	2	7	144	191	187
Malaria	18	45	31	651	802	763
Measles: Total*	17	12	12	3,334	5,431	2,323
Indigenous	16	10	N	2,931	5,143	N
Imported	1	2	N	403	282	N
Meningococcal infections: Total	33	36	30	2,174	1,903	2,075
Civilian	33	36	30	2,173	1,901	2,060
Military	-	-	-	1	2	6
Mumps	137	49	40	10,404	3,563	2,483
Pertussis	68	109	109	1,816	2,348	1,745
Rubella (German measles)	1	8	12	302	439	507
Syphilis (Primary & Secondary): Civilian	699	528	643	25,514	18,886	20,262
Military	-	2	4	126	125	234
Toxic Shock syndrome	11	8	N	243	259	N
Tuberculosis	499	434	491	15,361	15,768	15,768
Tularemia	9	3	7	152	109	184
Typhoid Fever	11	8	9	234	221	262
Typhus fever, tick-borne (RMSF)	14	18	30	523	595	711
Rabies, animal	90	100	112	3,477	4,107	4,107

TABLE II. Notifiable diseases of low frequency, United States

	Cum. 1987		Cum. 1987
Anthrax	1	Leptospirosis (Minn. 1)	17
Botulism: Foodborne	9	Plague	7
Infant	40	Poliomyelitis, Paralytic	-
Other	-	Psittacosis	63
Brucellosis (Ga.1, Fla.1, Ark.1, Calif.2)	88	Rabies, human	-
Cholera	4	Tetanus	31
Congenital rubella syndrome	5	Trichinosis	31
Congenital Syphilis, ages <1 year	127	Typhus fever, flea-borne (endemic, murine) (Upstate NY 1, Calif. 2, Tex. 4)	30
Diphtheria	1		

*There were no cases of internationally imported measles reported for this week.

TABLE III. Cases of specified notifiable diseases, United States, weeks ending September 26, 1987 and September 20, 1986 (38th Week)

Reporting Area	AIDS	Aseptic Meningitis	Encephalitis		Gonorrhea (Civilian)		Hepatitis (Viral), by type				Legionellosis	Leprosy
			Primary	Post-infectious			A	B	NA,NB	Unspecified		
	Cum. 1987	1987	Cum. 1987	Cum. 1987	Cum. 1987	Cum. 1986	1987	1987	1987	1987	1987	Cum. 1987
UNITED STATES	13,287	366	917	82	564,544	638,318	432	466	38	49	16	144
NEW ENGLAND	529	34	36	2	17,359	15,415	19	47	4	1	2	12
Maine	16	2	2	-	521	861	-	4	1	-	-	-
N.H.	13	2	2	-	293	406	-	-	-	-	-	2
Vt.	6	1	5	-	156	192	-	1	-	-	-	-
Mass.	330	10	17	1	6,228	6,413	9	26	2	1	2	9
R.I.	46	10	3	1	1,533	1,261	7	6	1	-	-	-
Conn.	117	9	7	-	8,628	6,482	3	10	-	-	-	1
MID. ATLANTIC	3,922	57	111	7	67,935	105,656	24	83	3	4	3	11
Upstate N.Y.	473	28	42	3	12,147	13,019	4	12	2	-	3	-
N.Y. City	2,364	9	6	-	46,379	59,411	8	45	-	3	-	11
N.J.	704	-	7	-	11,826	14,206	8	11	-	1	-	-
Pa.	381	20	54	4	16,583	19,020	4	15	1	-	-	-
E.N. CENTRAL	912	126	278	12	85,082	88,216	13	28	2	7	1	7
Ohio	176	59	121	5	18,871	21,210	3	10	-	-	-	2
Ind.	80	11	43	-	6,584	9,143	2	1	-	5	-	-
Ill.	442	-	25	7	26,024	22,156	-	-	-	-	-	1
Mich.	148	58	61	-	26,582	26,570	8	17	2	2	1	3
Wis.	68	-	28	-	7,011	9,137	-	-	-	-	-	1
W.N. CENTRAL	299	19	52	-	23,079	27,214	23	11	2	-	2	-
Minn.	80	1	32	-	3,508	3,939	6	2	-	-	1	-
Iowa	21	1	8	-	2,182	2,734	-	-	-	-	-	-
Mo.	144	10	-	-	12,202	13,583	6	5	1	-	1	-
N. Dak.	1	-	-	-	198	245	-	-	-	-	-	-
S. Dak.	2	6	-	-	441	575	-	-	1	-	-	-
Nebr.	16	-	10	-	1,491	2,133	-	-	-	-	-	-
Kans.	35	1	2	-	3,057	4,005	11	4	-	-	-	-
S. ATLANTIC	2,165	51	119	27	147,893	165,928	37	117	5	3	4	5
Del.	15	4	4	1	2,496	2,697	-	-	-	-	-	-
Md.	243	9	16	5	16,933	19,480	6	19	-	1	-	2
D.C.	272	-	-	-	9,807	12,312	1	1	-	-	-	-
Va.	155	4	27	2	11,115	13,594	2	12	-	-	-	-
W. Va.	18	2	36	-	1,088	1,669	-	4	1	-	-	-
N.C.	120	14	21	-	21,332	25,704	2	18	1	-	1	-
S.C.	55	2	-	-	11,855	14,391	2	14	-	-	-	1
Ga.	321	6	1	-	26,468	27,782	5	18	1	-	1	-
Fla.	966	10	14	19	46,819	48,299	19	31	2	2	2	2
E.S. CENTRAL	163	18	48	7	42,902	51,410	16	27	3	2	1	-
Ky.	25	14	22	1	4,320	5,666	14	8	3	1	1	-
Tenn.	31	2	10	-	14,936	19,841	1	13	-	-	-	-
Ala.	86	2	16	1	13,791	14,688	-	2	-	1	-	-
Miss.	21	-	-	5	9,855	11,215	1	4	-	-	-	-
W.S. CENTRAL	1,227	31	110	4	64,382	75,618	32	33	3	15	1	4
Ark.	26	3	-	2	7,131	7,122	5	7	-	-	1	-
La.	167	1	20	-	11,310	13,462	-	-	-	-	-	-
Okla.	73	1	18	1	7,054	8,893	6	2	1	1	-	-
Tex.	961	26	72	1	38,887	46,341	21	24	2	14	-	4
MOUNTAIN	356	11	37	4	14,944	18,776	80	40	5	4	1	2
Mont.	2	-	1	-	422	533	2	2	-	-	-	-
Idaho	5	-	-	-	543	684	12	4	-	-	-	1
Wyo.	3	-	1	-	326	406	-	-	-	-	-	-
Colo.	147	5	10	-	3,321	4,830	6	6	2	1	-	-
N. Mex.	27	-	5	-	1,857	1,857	10	3	1	-	-	-
Ariz.	115	6	15	1	6,096	6,115	49	25	1	2	-	-
Utah	21	-	1	3	462	810	-	-	-	-	-	-
Nev.	36	-	4	-	3,117	3,531	1	-	1	1	1	1
PACIFIC	3,715	17	126	19	80,968	90,095	188	80	11	13	1	103
Wash.	160	-	10	4	6,188	6,945	28	12	2	2	1	4
Oreg.	100	-	-	-	3,004	3,758	29	14	-	-	-	-
Calif.	3,381	14	111	15	69,896	76,411	128	53	9	11	-	79
Alaska	12	1	2	-	1,273	2,004	1	1	-	-	-	1
Hawaii	62	2	3	-	609	969	2	-	-	-	-	19
Guam	-	-	-	-	154	146	-	-	-	-	-	-
P.R.	84	4	1	1	1,498	1,755	-	12	1	6	-	5
V.I.	-	-	-	-	194	205	-	-	-	-	-	-
Pac. Trust Terr.	-	-	-	-	291	353	-	-	-	-	-	44
Amer. Samoa	-	-	-	-	83	31	-	-	-	-	-	-

N: Not notifiable U: Unavailable

TABLE III. (Cont'd.) Cases of specified notifiable diseases, United States, weeks ending September 26, 1987 and September 20, 1986 (38th Week)

Reporting Area	Malaria	Measles (Rubeola)					Meningococcal infections	Mumps		Pertussis			Rubella		
		Indigenous		Imported*		Total									
	Cum. 1987	1987	Cum. 1987	1987	Cum. 1987	Cum. 1986	Cum. 1987	1987	Cum. 1987	1987	Cum. 1987	Cum. 1986	1987	Cum. 1987	Cum. 1986
UNITED STATES	651	16	2,931	1	403	5,431	2,174	137	10,404	68	1,816	2,348	1	302	439
NEW ENGLAND	43	-	114	-	156	96	184	2	43	2	116	124	-	1	9
Maine	2	-	3	-	-	13	10	-	-	-	26	2	-	1	-
N.H.	2	-	61	-	102	43	17	-	9	-	27	62	-	-	1
Vt.	-	-	11	-	15	-	13	-	3	-	4	3	-	-	1
Mass.	15	-	22	-	32	35	91	-	13	-	42	28	-	-	4
R.I.	7	-	1	-	1	2	14	-	2	-	1	5	-	-	2
Conn.	17	-	16	-	6	3	39	2	16	2	16	24	-	-	1
MID. ATLANTIC	77	-	520	-	57	1,892	271	2	186	9	215	156	-	11	31
Upstate N.Y.	28	-	26	-	14	100	93	-	84	2	122	103	-	9	23
N.Y. City	5	-	441	-	19	663	20	-	10	4	8	3	-	1	5
N.J.	21	-	32	-	7	905	49	1	48	1	12	14	-	1	3
Pa.	23	-	21	-	17	24	109	1	44	2	73	36	-	-	-
E.N. CENTRAL	43	2	294	-	24	1,048	320	24	6,003	1	188	303	-	35	69
Ohio	12	-	1	-	4	10	105	-	84	-	86	117	-	-	1
Ind.	4	-	-	-	-	29	36	-	918	-	15	24	-	-	-
Ill.	7	2	127	-	18	660	78	9	2,495	-	14	36	-	25	59
Mich.	16	-	29	-	-	58	83	13	891	1	42	28	-	9	8
Wis.	4	-	137	-	2	288	18	2	1,615	-	62	98	-	1	1
W.N. CENTRAL	19	-	208	-	22	339	92	4	1,343	13	109	260	-	1	11
Minn.	7	-	19	-	20	49	27	-	774	-	13	44	-	-	-
Iowa	4	-	-	-	-	134	3	1	309	9	41	18	-	1	1
Mo.	4	-	186	-	1	31	26	2	24	4	28	18	-	-	1
N. Dak.	-	-	1	-	-	25	1	-	6	-	10	5	-	-	1
S. Dak.	-	-	-	-	-	-	2	1	90	-	3	14	-	-	-
Nebr.	3	-	-	-	-	1	5	-	3	-	1	7	-	-	-
Kans.	1	-	-	-	1	99	28	-	47	-	13	154	-	-	8
S. ATLANTIC	110	2	120	-	12	638	352	2	239	9	267	665	-	14	6
Del.	1	-	32	-	-	1	5	-	-	-	5	227	-	2	-
Md.	24	2	5	-	2	35	33	2	25	-	11	159	-	2	-
D.C.	15	-	-	-	1	2	7	-	1	-	-	-	-	-	-
Va.	23	-	1	-	-	60	58	-	69	-	47	34	-	1	-
W. Va.	2	-	-	-	-	2	2	-	32	-	46	23	-	-	-
N.C.	9	-	2	-	3	4	46	-	17	2	107	60	-	1	-
S.C.	4	-	2	-	-	301	34	-	13	-	-	16	-	-	-
Ga.	4	-	-	-	1	93	69	-	40	-	23	122	-	1	-
Fla.	28	-	78	-	5	140	98	-	42	7	28	44	-	7	6
E.S. CENTRAL	12	1	3	-	3	57	106	6	1,232	-	33	46	-	3	4
Ky.	1	-	-	-	-	6	20	2	214	-	1	5	-	2	4
Tenn.	1	-	-	-	-	56	42	4	958	-	9	18	-	1	-
Ala.	5	1	1	-	3	2	36	-	60	-	18	23	-	-	-
Miss.	5	-	2	-	-	3	8	N	N	-	5	-	-	-	-
W.S. CENTRAL	44	-	405	-	4	642	153	90	812	9	231	189	-	11	62
Ark.	1	-	-	-	-	283	19	-	281	2	12	12	-	2	-
La.	-	-	-	-	-	4	18	77	296	-	42	13	-	-	-
Okla.	4	-	2	-	1	39	19	N	N	7	126	101	-	5	-
Tex.	39	-	403	-	3	316	97	3	235	-	51	63	-	4	62
MOUNTAIN	29	4	481	-	19	324	72	5	201	6	156	221	-	24	23
Mont.	-	-	127	-	1	8	4	-	6	-	6	13	-	8	2
Idaho	2	-	-	-	-	1	5	-	5	2	42	33	-	1	-
Wyo.	1	-	-	-	2	-	-	-	-	-	5	4	-	1	1
Colo.	7	-	5	-	4	7	21	-	28	1	54	62	-	-	1
N. Mex.	2	-	313	-	9	37	5	N	N	2	11	20	-	-	-
Ariz.	14	4	34	-	1	258	24	4	149	1	30	50	-	4	2
Utah	1	-	-	-	1	12	9	-	9	-	8	36	-	10	14
Nev.	2	-	2	-	1	1	4	1	4	-	-	4	-	-	3
PACIFIC	274	7	786	1	106	585	624	12	345	19	501	364	1	202	224
Wash.	18	-	34	-	7	156	70	1	46	2	71	107	-	2	15
Oreg.	5	-	3	15	76	9	26	N	N	1	59	10	-	2	1
Calif.	247	7	749	-	17	392	515	10	277	9	176	235	1	127	203
Alaska	3	-	-	-	-	-	4	-	7	-	10	2	-	2	-
Hawaii	1	-	-	-	4	28	9	1	15	7	185	10	-	69	5
Guam	-	-	2	-	-	5	4	-	5	-	-	-	-	1	3
P.R.	1	-	746	-	-	33	5	2	11	-	16	13	-	2	60
V.I.	-	-	-	-	-	-	-	-	12	-	-	-	-	-	-
Pac. Trust Terr.	-	-	1	-	-	-	1	-	5	-	1	-	-	1	2
Amer. Samoa	-	-	-	-	-	2	-	-	3	-	-	-	-	-	1

*For measles only, imported cases includes both out-of-state and international importations.
N: Not notifiable U: Unavailable †International §Out-of-state

TABLE III. (Cont'd.) Cases of specified notifiable diseases, United States, weeks ending September 26, 1987 and September 20, 1986 (38th Week)

Reporting Area	Syphilis (Civilian) (Primary & Secondary)		Toxic-shock Syndrome	Tuberculosis		Tula-remia	Typhoid Fever	Typhus Fever (Tick-borne) (RMSF)	Rabies, Animal
	Cum. 1987	Cum. 1986	1987	Cum. 1987	Cum. 1986	Cum. 1987	Cum. 1987	Cum. 1987	Cum. 1987
UNITED STATES	25,514	18,886	11	15,361	15,768	152	234	523	3,477
NEW ENGLAND	448	347	-	486	504	1	25	7	6
Maine	1	15	-	22	33	-	1	-	2
N.H.	3	10	-	16	23	-	-	-	-
Vt.	2	8	-	10	14	-	1	-	-
Mass.	206	182	-	273	259	1	13	4	-
R.I.	8	18	-	42	40	-	3	-	1
Conn.	228	104	-	123	135	-	7	3	3
MID. ATLANTIC	4,760	2,714	2	2,678	3,185	-	23	17	301
Upstate N.Y.	170	140	1	372	484	-	8	7	47
N.Y. City	3,500	1,536	1	1,267	1,662	-	1	5	-
N.J.	495	484	-	507	561	-	14	1	13
Pa.	595	554	-	532	518	-	-	4	241
E.N. CENTRAL	681	692	1	1,781	1,879	3	26	48	132
Ohio	77	97	-	330	331	1	7	34	10
Ind.	48	86	-	174	204	-	4	-	15
Ill.	369	351	-	780	805	-	8	6	38
Mich.	133	125	1	420	445	-	4	5	28
Wis.	54	33	-	77	94	2	3	3	43
W.N. CENTRAL	143	162	2	453	474	54	9	52	755
Minn.	14	28	2	91	110	-	4	-	183
Iowa	21	6	-	31	38	4	2	1	218
Mo.	68	85	-	249	238	33	3	18	46
N. Dak.	-	6	-	6	8	1	-	-	90
S. Dak.	10	4	-	23	23	9	-	1	186
Nebr.	10	12	-	18	8	2	-	3	16
Kans.	20	21	-	35	49	5	-	29	36
S. ATLANTIC	8,882	5,740	1	3,311	3,061	5	24	194	862
Del.	58	44	-	32	33	1	-	2	-
Md.	457	316	1	301	233	-	3	42	318
D.C.	254	214	-	114	104	-	1	-	36
Va.	218	268	-	324	257	2	6	17	272
W. Va.	6	18	-	79	90	-	1	7	48
N.C.	490	366	-	372	411	2	2	85	13
S.C.	548	479	-	348	399	-	-	33	46
Ga.	1,217	1,101	-	576	477	-	-	29	157
Fla.	5,405	2,934	-	1,167	1,057	-	11	2	72
E.S. CENTRAL	1,437	1,256	-	1,261	1,398	7	3	84	234
Ky.	13	58	-	313	330	2	2	9	114
Tenn.	572	459	-	302	405	1	1	55	57
Ala.	368	409	-	390	476	1	-	15	63
Miss.	484	330	-	256	283	3	-	5	-
W.S. CENTRAL	3,144	3,747	-	1,796	1,880	58	16	107	474
Ark.	199	176	-	206	272	25	2	11	94
La.	592	641	-	197	320	3	-	-	12
Okla.	115	101	-	172	187	25	3	83	29
Tex.	2,238	2,829	-	1,221	1,201	3	11	13	339
MOUNTAIN	507	427	3	379	379	15	13	12	296
Mont.	9	6	-	11	17	2	-	10	133
Idaho	5	10	-	17	17	1	-	-	7
Wyo.	2	1	-	-	-	-	-	1	63
Colo.	95	105	-	40	42	4	-	-	7
N. Mex.	48	51	-	70	74	1	9	-	2
Ariz.	245	171	-	203	178	3	3	-	64
Utah	21	13	3	16	28	2	-	1	7
Nev.	92	70	-	22	23	2	1	-	13
PACIFIC	5,732	3,801	2	3,206	2,900	11	95	2	317
Wash.	77	117	-	186	139	4	7	-	-
Oreg.	208	94	-	86	98	4	1	-	-
Calif.	5,436	3,575	2	2,743	2,482	2	81	2	314
Alaska	3	-	-	52	37	1	-	-	3
Hawaii	10	25	-	139	134	-	6	-	-
Guam	2	1	-	26	34	-	-	-	-
P.R.	667	661	-	215	245	-	-	-	52
V.I.	4	1	-	2	1	-	-	-	-
Pac. Trust Terr.	128	200	-	124	52	-	16	-	-
Amer. Samoa	2	-	-	-	5	-	1	-	-

U: Unavailable

TABLE IV. Deaths in 121 U.S. cities,* week ending September 26, 1987 (38th Week)

Reporting Area	All Causes, By Age (Years)						P&I**
	All Ages	>65	45-64	25-44	1-24	<1	Total
NEW ENGLAND	656	434	147	44	9	22	41
Boston, Mass.	179	106	45	15	3	10	14
Bridgeport, Conn.	42	28	10	3	1	-	2
Cambridge, Mass.	29	21	6	2	-	-	5
Fall River, Mass.	23	19	3	1	-	-	1
Hartford, Conn.	67	36	19	6	3	4	1
Lowell, Mass.	30	23	6	1	-	-	-
Lynn, Mass.	19	14	3	2	-	-	4
New Bedford, Mass.	31	24	6	-	1	-	-
New Haven, Conn.	55	38	11	5	-	1	4
Providence, R.I.	43	32	4	4	-	3	4
Somerville, Mass.	10	7	3	-	-	-	1
Springfield, Mass.	48	28	12	3	-	2	3
Waterbury, Conn.	27	19	6	1	1	-	2
Worcester, Mass.	58	40	13	1	-	2	-
MID. ATLANTIC	2,844	1,599	571	264	58	52	97
Albany, N.Y.	52	35	9	4	2	2	1
Allentown, Pa.	23	14	6	3	-	-	-
Buffalo, N.Y.	117	74	26	13	3	1	10
Camden, N.J.	37	22	10	3	1	1	2
Elizabeth, N.J.	30	19	7	4	-	-	-
Erie, Pa.†	39	29	9	1	-	-	5
Jersey City, N.J.	58	36	16	6	-	-	-
N.Y. City, N.Y.	1,298	788	279	165	36	20	45
Newark, N.J.	56	35	12	5	-	3	3
Paterson, N.J.	30	13	13	-	4	-	1
Philadelphia, Pa.	401	240	102	37	7	15	17
Pittsburgh, Pa.†	77	53	19	2	1	2	1
Reading, Pa.	27	16	10	1	-	-	-
Rochester, N.Y.	86	63	13	7	-	2	3
Schenectady, N.Y.	27	19	4	3	1	-	-
Scranton, Pa.†	25	18	5	-	2	-	-
Syracuse, N.Y.	88	57	20	2	1	6	2
Trenton, N.J.	27	17	7	3	-	-	2
Utica, N.Y.	14	11	2	1	-	-	2
Yonkers, N.Y.	36	30	2	4	-	-	3
E.N. CENTRAL	2,298	1,477	492	180	63	86	100
Akron, Ohio	54	28	14	7	3	2	-
Canton, Ohio	35	26	7	2	-	-	3
Chicago, Ill.§	564	362	125	45	10	22	16
Cincinnati, Ohio	174	114	36	15	3	6	21
Cleveland, Ohio	173	113	40	12	4	4	5
Columbus, Ohio	130	77	30	8	6	9	2
Dayton, Ohio	108	66	26	8	3	5	5
Detroit, Mich.	266	162	50	34	13	7	4
Evansville, Ind.	50	39	6	4	-	1	3
Fort Wayne, Ind.	55	28	16	6	5	-	2
Gary, Ind.	13	11	2	-	-	-	-
Grand Rapids, Mich.	60	34	18	3	2	3	6
Indianapolis, Ind.	159	100	36	9	4	10	5
Madison, Wis.	39	27	7	3	1	1	3
Milwaukee, Wis.	126	83	32	5	2	4	8
Peoria, Ill.	49	28	13	3	-	5	3
Rockford, Ill.	51	36	10	2	1	2	5
South Bend, Ind.	49	36	6	2	3	2	4
Toledo, Ohio	82	62	8	8	2	2	5
Youngstown, Ohio	61	45	10	4	1	1	-
W.N. CENTRAL	739	490	142	58	27	20	38
Des Moines, Iowa	63	39	13	5	6	1	5
Duluth, Minn.	13	8	1	1	-	1	-
Kansas City, Kans.	33	20	6	6	-	1	2
Kansas City, Mo.	120	70	29	11	6	4	-
Lincoln, Nebr.	29	23	5	1	-	-	-
Minneapolis, Minn.	159	117	25	11	2	4	14
Omaha, Nebr.	74	52	13	2	4	3	3
St. Louis, Mo.	129	82	27	12	5	3	8
St. Paul, Minn.	53	35	11	4	2	1	2
Wichita, Kans.	66	45	12	5	2	2	4
S. ATLANTIC	1,236	767	266	106	43	52	56
Atlanta, Ga.	177	102	43	19	4	9	6
Baltimore, Md.	208	125	52	13	8	10	10
Charlotte, N.C.	80	48	17	7	4	4	5
Jacksonville, Fla.	111	74	18	10	7	2	4
Miami, Fla.	149	93	35	15	2	4	1
Norfolk, Va.	47	26	11	6	2	2	1
Richmond, Va.	86	55	15	5	4	7	8
Savannah, Ga.	56	40	12	5	1	-	5
St. Petersburg, Fla.	90	69	14	3	-	4	8
Tampa, Fla.	58	40	13	2	1	1	4
Washington, D.C.	153	81	32	21	10	8	3
Wilmington, Del.	19	14	4	-	-	1	1
E.S. CENTRAL	791	518	165	55	22	29	52
Birmingham, Ala.	128	72	28	13	3	12	3
Chattanooga, Tenn.	60	47	8	3	1	1	5
Knoxville, Tenn.	91	68	17	5	-	1	7
Louisville, Ky.	85	58	15	5	4	3	4
Memphis, Tenn.	204	141	40	13	7	2	20
Mobile, Ala.	65	36	23	4	1	1	2
Montgomery, Ala.	47	28	11	2	1	4	4
Nashville, Tenn.	111	68	23	10	5	5	7
W.S. CENTRAL	1,338	810	278	132	62	55	54
Austin, Tex.	49	25	13	6	4	1	-
Baton Rouge, La.	52	37	11	2	1	1	2
Corpus Christi, Tex.	32	18	9	4	1	-	2
Dallas, Tex.	206	129	32	27	8	10	6
El Paso, Tex.	69	41	14	5	5	4	5
Fort Worth, Tex.	93	57	20	5	5	6	5
Houston, Tex.§	308	176	74	34	13	11	7
Little Rock, Ark.	72	42	14	5	4	6	5
New Orleans, La.	104	66	25	9	3	1	1
San Antonio, Tex.	177	108	30	19	13	7	7
Shreveport, La.	66	34	21	6	2	3	3
Tulsa, Okla.	110	77	15	10	3	5	6
MOUNTAIN	652	412	132	63	34	11	25
Albuquerque, N. Mex.§	77	49	14	7	6	1	4
Colo. Springs, Colo.	36	27	6	1	1	1	4
Denver, Colo.	111	63	28	16	4	-	5
Las Vegas, Nev.	101	61	24	13	3	-	4
Ogden, Utah	18	14	2	-	1	1	2
Phoenix, Ariz.	133	82	22	16	8	5	1
Pueblo, Colo.	20	14	5	1	-	-	-
Salt Lake City, Utah	41	22	8	3	6	2	-
Tucson, Ariz.	115	80	23	6	5	1	5
PACIFIC	1,841	1,185	372	177	54	44	93
Berkeley, Calif.	17	12	4	1	-	-	1
Fresno, Calif.	62	41	11	7	1	2	5
Glendale, Calif.	30	24	5	1	-	-	2
Honolulu, Hawaii	55	35	17	3	-	-	6
Long Beach, Calif.	89	55	15	11	4	3	5
Los Angeles Calif.	589	348	141	58	24	10	16
Oakland, Calif.	71	49	12	6	3	1	4
Pasadena, Calif.	31	26	2	3	-	-	-
Portland, Oreg.	96	69	16	5	2	3	4
Sacramento, Calif.	125	91	20	7	3	4	14
San Diego, Calif.	153	99	26	17	7	5	8
San Francisco, Calif.	140	85	29	20	2	4	6
San Jose, Calif.	164	107	30	15	3	9	10
Seattle, Wash.	127	78	28	17	3	1	1
Spokane, Wash.	52	39	8	4	1	-	7
Tacoma, Wash.	41	28	8	2	1	2	2
TOTAL	12,096††	7,892	2,585	1,079	372	371	860

*Mortality data in this table are voluntarily reported from 121 cities in the United states, most of which have populations of 100,000 o more. A death is reported by the place of its occurrence and by the week that the death certificate was filed. Fetal deaths are no included.

**Pneumonia and influenza.

†Because of changes in reporting methods in these 3 Pennsylvania cities, these numbers are partial counts for the current week Complete counts will be available in 4 to 6 weeks.

††Total includes unknown ages.

§Data not available. Figures are estimates based on average of past 4 weeks.

Occupant Restraint Usage — Continued

Since 1975, the National Highway Traffic Safety Administration (NHTSA) has used the Fatal Accident Reporting System (FARS) to maintain information on all crashes involving at least one fatality. FARS contains data on all persons (decedents and survivors) involved in fatal crashes, on all vehicles involved (regardless of whether an occupant died), on the circumstances of the crash (weather, road type and condition, time of day, etc.), on whether occupants were wearing seat belts, and on the severity of injuries suffered by each person. This report presents data on passenger restraint use among occupants of automobiles involved in fatal crashes for the period 1975-1986.

Based on several methods of measurement, overall motor vehicle-related fatality rates increased during the period 1960-1985. Deaths measured by miles traveled increased during the early 1960s, decreased from the mid-1960s until the mid-1970s, and decreased again in the early 1980s (Figure 1). The population death rate (unadjusted for age) rose through most of the 1960s, fell sharply in the early 1970s, rose again in the late 1970s, and fell again in the 1980s (Figure 2).

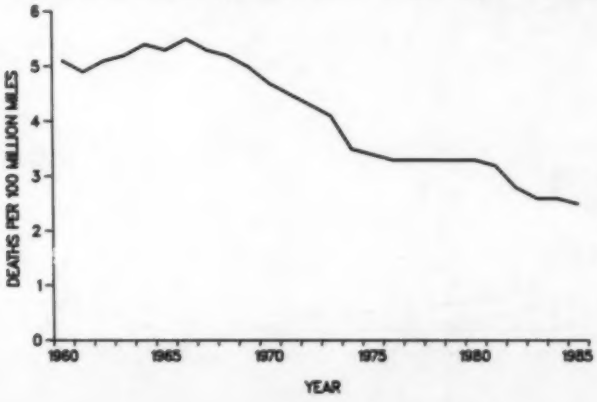
The proportion of individuals wearing seat belts in fatal crashes decreased from 1975 to 1980 and then increased after 1980, with the largest increases occurring in 1985 and 1986 (Figure 3). Within each year, the proportion of seat-belt use was inversely related to the severity of injury, with uninjured persons having the highest proportion of seat-belt use and those who died having the lowest (Figure 4).

Reported by: JR Hackney, National Highway Traffic Safety Administration, US Dept of Transportation. Div of Injury Epidemiology and Control, Center for Environmental Health and Injury Control, CDC.

Editorial Note: The effectiveness of seat belts in reducing mortality has been shown in numerous studies. Although the size of the effect has varied considerably across studies, NHTSA has derived a consensus estimate of about a 40% to 50% reduction in mortality (*3,4*).

The FARS data at both the aggregate and the individual levels suggest that increases in the use of occupant restraints are associated with decreases in motor

FIGURE 1. Deaths per 100 million miles traveled — United States, 1960-1985 (*1*)



Occupant Restraint Usage — Continued

vehicle-related fatality rates. However, these data cannot conclusively demonstrate such a relationship. For example, the motor vehicle-related fatality rate in any particular year depends upon factors such as the number and severity of crashes that occur, the crash-worthiness of the automobiles involved, and the ability of occupants to survive crashes. Thus, other factors besides increased restraint usage might be responsible for observed decreases in the motor vehicle-related fatality rate. Additionally, since the survivors in FARS are not a random sample of all occupants

FIGURE 2. Motor vehicle-related deaths per 100,000 residents — United States, 1960-1985 (*1*)

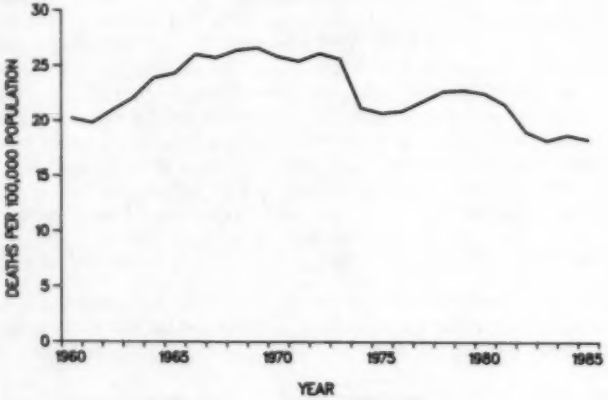
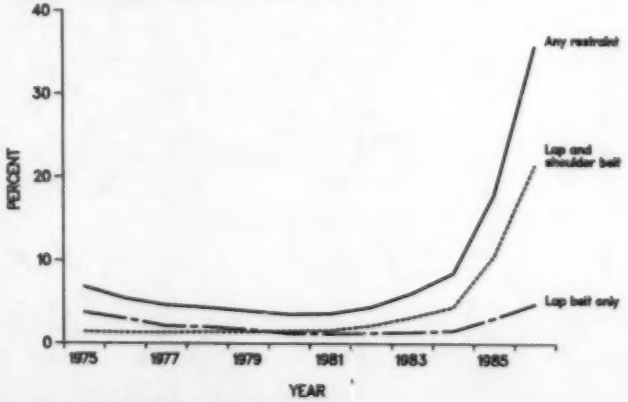


FIGURE 3. Percentage of seat-belt users among occupants of automobiles involved in fatal crashes — United States, 1975-1986



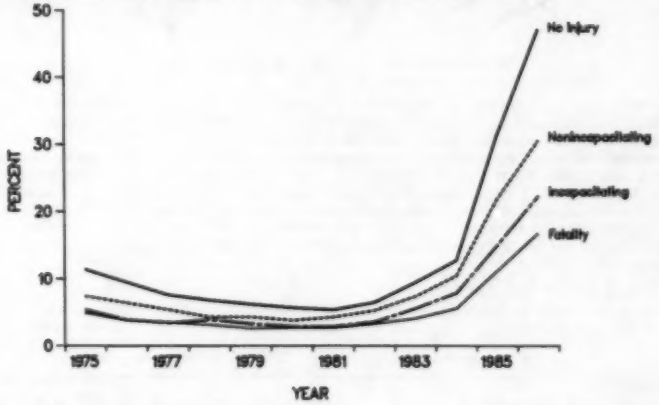
Data source: Fatal Accident Reporting System.

Occupant Restraint Usage — Continued

involved in motor vehicle crashes, a direct comparison of the proportion of survivors who had worn seat belts to the proportion of decedents who had worn seat belts may be misleading.

Currently, a total of 28 states have mandatory seat-belt laws in effect. The first mandatory seat-belt law became effective in New York in early 1985. Additional seat-belt laws also became effective that year in New Jersey, Illinois, Michigan, Texas, Nebraska, Missouri, North Carolina, the District of Columbia, and Hawaii. Eight more seat-belt laws that were passed in 1985 took effect in 1986 and 1987 (*1*). In early 1985, 15% of occupants nationwide wore seat belts; by the end of that year, the proportion had increased to 23% (*5*). NHTSA estimates that 263 lives were saved during 1985 because of the seat-belt laws in the first eight states (*1*).

FIGURE 4. Percentage of seat-belt users among occupants of automobiles involved in fatal crashes, by severity of injury — United States, 1975-1986



Data source: Fatal Accident Reporting System.

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FIGURE I. Reported measles cases — United States, weeks 34-37, 1987

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Director, Centers for Disease Control
James O. Mason, M.D., Dr.P.H.
Director, Epidemiology Program Office
Carl W. Tyler, Jr., M.D.
Editor
Michael B. Gregg, M.D.
Managing Editor
Gwendolyn A. Ingraham

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DEPARTMENT OF
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